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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/790,412

03/01/2004

Jongwook Kye

H1648

1460

7590

08/05/2004

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EXAMINER

FULLER, RODNEY EVAN

ART UNIT

PAPER NUMBER

2851

DATE MAILED: 08/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/790,412

Applicant(s)

KYE ET AL.

Examiner

Rodney E Fuller

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

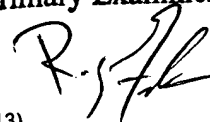
- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Rodney Fuller
Primary Examiner



Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 05/21/04.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 2 and 12 objected to because of the following informalities: The word “flourine” appears to be a typographical error. The word should be “fluorine.” Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 4-7, 9, 11 and 14-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Fujie, et al. (US 5,696,623).

Regarding claims 1, 11 and 21, Fujie discloses “providing the lithographic apparatus including the projection system (Fig. 5B, ref.# 15) for imaging an irradiated portion of a mask (Fig. 5B, ref.# 13) onto a target portion of a substrate (Fig. 5B, ref.# 16); and placing a pellicle (Fig. 5B, ref.# 24, 25) over a surface of the projection system to inhibit contamination of the surface.”

Regarding claims 4 and 5, Fujie discloses “replacing the pellicle when a scattering of an illumination source reaches a specified criteria.” (column 8, lines 8-9)

Regarding claims 5 and 15, Fujie discloses “illuminating the lithographic apparatus with an illumination light of a wavelength of between about 190 nm and 250 nm.” (Note: Lines 1-2 on page 6 of the Specification state: “The radiation source 16 may be a mercury lamp or excimer lamp laser.” Likewise, Fujie discloses that the light source may be a mercury lamp or excimer laser in column 1, lines 23-25 and column 9, lines 3-4.) (Note: An ArF excimer laser is typically used to produce a wavelength of 193nm for use in photolithography systems.)

Regarding claims 6 and 16, Fujie discloses “illuminating the lithographic apparatus with an illumination light of a wavelength of between about 155 nm and 190 nm.” (Note: Lines 1-2 on page 6 of the Specification state: “The radiation source 16 may be a mercury lamp or excimer lamp laser.” Likewise, Fujie discloses that the light source may be a mercury lamp or excimer laser in column 1, lines 23-25 and column 9, lines 3-4.) (Note: An F₂ excimer laser is typically used to produce a wavelength of 157nm for use in photolithography systems.)

Regarding claims 7 and 17, Fujie discloses “wherein the surface of the projection system is at least one of a top surface and bottom surface.” (Fig. 5B, ref.# 15)

Regarding claim 18, Fujie discloses “wherein the surface is the top surface of the projection system.” (Note: Claim 8 corresponds to the limitations of claim 18.) (Fig. 5B, ref.# 15 – note lens near pellicle ref.# 24)

Regarding claims 9 and 19, Fujie discloses “wherein the surface is the bottom surface of the projection system.” (Fig. 5B, ref.# 15 – note lens near pellicle ref.# 25)

Regarding claim 20, Fujie discloses “wherein the projection system includes at least two lenses, the top surface of the projection system is a top surface of a top lens, and the bottom surface of the projection system is a bottom surface of a bottom lens.” (Note: Claim 10

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corresponds to the limitations of claim 20) (Fig. 5B, ref.# 15 – note lenses near pellicle ref.#s 23 and 25)

Regarding claim 21, Fujie discloses “a radiation system (Fig. 5B, ref.# 20) for supplying a projection beam of radiation; a mask table including a mask holder for holding a mask (Fig. 5B, ref.# 13) connected to a positioner for accurately positioning the mask with respect to a projection system (Fig. 5B, ref.# 15); a substrate table (Fig. 5B, ref.# 18) including a substrate holder (Fig. 5B, ref.# 17) for holding a substrate connected to the positioner (column 6, lines 62) for accurately positioning the substrate (Fig. 5B, ref.# 16) with respect to the projection system (Fig 5B, ref.# 15).” (Note: The “mask table” and “mask holder” are not specifically shown in Figure 5B of Fujie. However, the a “mask table” and “mask holder” are inherent in that they are necessary to hold and position the mask (ref.# 3) in the optical system.)

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujie, et al. (US 5,696,623) in view of Nagata (US 2004/0091796).

Regarding claims 2 and 12, Fujie does not disclose “wherein the pellicle comprises a fluorine polymer.” However, the use of a fluorine polymer as a pellicle is routine in the art as is

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evident from the teaching of Nagata (US 2004/0091796) (See paragraph 0038). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Fujie by “wherein the pellicle comprises a fluorine polymer,” since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Claim 8 depends from claim 2. However, claim 8 corresponds to the limitations of claim 18. (See 35 U.S.C. 102 rejection above)

6. Claims 3, 10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujie, et al. (US 5,696,623) in view of Hibbs (US 6,731,378).

Regarding claims 3 and 13, Fujie does not disclose “wherein the pellicle comprises a fused silica.” However, the use of fused silica as a pellicle is routine in the art as is evident from the teaching of Hibbs (US 6,731,378) (See column 1, lines 30-32) Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Fujie by “wherein the pellicle comprises fused silica,” since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Claim 10 depends from claim 3. However, claim 10 corresponds to the limitations of claim 20. (See 35 U.S.C. 102 rejection above)

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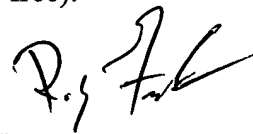
Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney E Fuller whose telephone number is 571-272-2118. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rodney E Fuller
Primary Examiner
Art Unit 2851



August 2, 2004